

What is claimed is:

1. A system of managing slack in fiber optic cables connected to a circuit board, comprising:

a first radius guide elevating a cable above a circuit board, said radius guide having a leading edge and a trailing edge which respectively provide two points of support for the cable above the circuit board.

2. A slack managing system according to Claim 1, said first radius guide further comprising:

a central curved portion between said leading edge and said trailing edge,

wherein a cable supported by said first radius guide is supported by said leading edge, is bent over said curved portion, and is supported by said trailing edge.

3. A slack managing system according to Claim 2, further comprising at least a first retaining notch formed on said leading edge and at least a second retaining notch formed on said trailing edge, said first and second retaining notches adapted to receive the cable and provide said two points of support for the cable.

4. A slack managing system according to Claim 1, further comprising at least one foot on a bottom surface of said first radius guide attachable to the circuit board.

5. A slack managing system according to Claim 3, further comprising a second radius guide similar to said first radius guide, spaced apart from said first radius guide.

6. A slack managing system according to Claim 3, further comprising a retaining cross arm formed over at least one of said retaining notches, wherein when a cable is a shorter cable, the cable contacts an underside of said retaining cross arm, and when a cable is a longer cable, the cable contacts respective lower edges of said retaining notches.

7. A slack managing system according to Claim 2, wherein a radius of said central curved portion is approximately the minimum bend radius of the cable being supported.
8. A slack managing system according to Claim 5, further comprising retaining cross arms respectively formed over said retaining notches, wherein when a cable is a shorter cable, the cable contacts respective undersides of said retaining cross arms, and when a cable is a longer cable, the cable contacts respective lower edges of said retaining notches.
9. A slack managing system according to Claim 5, further comprising elevating clips to elevate the cable above the circuit board in front of said leading edge of said first radius guide.
10. A slack managing system according to Claim 3, said first radius guide further comprising a plurality of first retaining notches formed in said leading edge and a corresponding plurality of second retaining notches formed in said trailing edge to accommodate a plurality of cables.
11. A slack managing system according to Claim 5, said first and second radius guides each further comprising a plurality of first retaining notches formed in said respective leading edges and a corresponding plurality of second retaining notches formed in said respective trailing edges to accommodate a plurality of cables.
12. A slack managing system according to Claim 5, further comprising a tensioning assembly contacting the cable at a point between said first and second radius guides providing tension to the cable.
13. A slack managing system according to Claim 12, said tensioning assembly comprising a leaf spring which is biasable against the cable.

14. A slack managing system according to Claim 13, said tensioning assembly being attachable to one of said radius guides.
15. A slack managing system according to Claim 11, further comprising a tensioning assembly contacting the cables each at a point between said first and second radius guides providing tension to the cables.
16. A slack managing system according to Claim 15, said tensioning assembly comprising a plurality of leaf springs which are each biasable against respective cables.
17. A slack managing system according to Claim 16, said tensioning assembly being attachable to one of said radius guides.
18. A slack managing system according to Claim 16, said tensioning assembly being attachable to the circuit board above one of said radius guides.
19. A slack managing system according to Claim 1, wherein said first radius guide is disposed on the circuit board so that said leading edge is disposed closer to a front side of the circuit board and said trailing edge is disposed closer to the rear side of the circuit board.
20. A slack managing system according to Claim 5, wherein said first and second radius guides are disposed on the circuit board so that said leading edges are disposed closer to a front side of the circuit board and said trailing edges are disposed closer to the rear side of the circuit board.

21. A slack managing system according to Claim 1, wherein said radius guide is adapted to accommodate multi-fiber ribbon cable.

22. A method of managing slack in a fiber optic cable connected to a circuit board, comprising the steps of:

raising the cable off of the circuit board surface; and

providing at least two points of support above the circuit board surface which can accommodate varying lengths of cable under varying slack conditions.

23. A method of slack management according to Claim 22, further comprising the step of: bending the cable between the at least two points of support above the circuit board around a radius guide.

24. A method of slack management according to Claim 23, further comprising the step of dimensioning the radius guide to approximately a minimum bend radius of the cable.

25. A method of slack management according to Claim 23, further comprising the step of: twisting the cable about an axis of the cable in a location on the cable different from where the cable is bent in said bending step.

26. A method of slack management according to Claim 23, further comprising the step of: providing at least two radius guides spaced apart around which the cable may be bent.

27. A method of slack management according to Claim 26, further comprising the steps of: keeping taut a shorter cable between the two radius guides; and keeping slightly slack a longer cable between the two radius guides.

28. A method of slack management according to Claim 27, further comprising the step of:
applying tension to the cable between the two radius guides.
29. A method of slack management according to Claim 23, wherein the two points of support
are respectively provided on a leading edge and a trailing edge of the radius guide.
30. A method of slack management according to Claim 29, further comprising the step of:
providing at least two radius guides spaced apart around which the cable may be bent, the
two radius guides each having two points of support for a total of four points of support for the
cable.
31. A method of slack management according to Claim 30, further comprising the steps of:
keeping taut a shorter cable between the two radius guides; and
keeping slightly slack a longer cable between the two radius guides.
32. A method of slack management according to Claim 22, further comprising the step of:
providing multiple pairs of points of support above the circuit board to accommodate
multiple fiber optic cables.
33. A method of managing slack in fiber optic cables connected to a circuit board,
comprising the steps of:
supporting the cables a vertical distance above the circuit board each with a plurality of
points of support;
tensioning the cables between at least two of the points of support so that cables of
differing lengths are all relatively taut over at least a portion of the lengths of the cables.
34. A method of slack management according to Claim 33, further comprising the steps of:

bending the cables between the at least two points of support above the circuit board around a radius guide; and

twisting the cables about respective axes of the cables in locations on the cables different from where the cables are bent in said bending step.

35. A method of managing slack in a fiber optic cable connected to a circuit board, comprising the steps of:

displacing the cable away from the circuit board surface; and

providing at least one point of support away from the circuit board surface which can accommodate varying lengths of cable under varying slack conditions.

36. A method of managing slack in a fiber optic cable connected to a circuit board according to Claim 35, said displacing step further comprising the step of displacing the cable in a direction normal to the circuit board surface, and said providing step further comprising the step of providing at least two points of support away from the circuit board surface.

37. A method of slack management according to Claim 36, further comprising the step of: bending the cable about an axis parallel to the circuit board around a radius guide.

38. A method of managing slack in a fiber optic cable connected to a circuit board at two points, comprising the steps of:

supporting the cable a distance away from the circuit board at a minimum of one point of support between and not colinear with the two points at which the cable is connected to the circuit board.

39. A system of managing slack in fiber optic cables connected to a circuit board, comprising:

means for supporting a cable a distance away from the circuit board at a minimum of one point of support between and not colinear with the two points at which the cable is connected to the circuit board.

40. A slack management system according to Claim 39, wherein said supporting means comprises at least one elevating clip to displace the cable away from the circuit board

41. A slack management system according to Claim 39, wherein said supporting means comprises a first radius guide elevating a cable above a circuit board, said radius guide having a leading edge and a trailing edge which respectively provide two points of support for the cable above the circuit board.

42. A slack management system according to Claim 39, further comprising means for twisting the cable about the cable's long axis.

43. A slack management system according to Claim 42, said twisting means twisting the cable at a point other than said at least one point of support away from the circuit board.

44. A method according to Claim 38, further comprising the step of tensioning the cable so that cables of differing lengths are all relatively taut over at least a portion of the lengths of the cables.

45. A method of managing slack in a fiber optic cable connected to a circuit board at two points comprising the step of twisting the cable about a long axis of the cable a predetermined angle over a predetermined length of cable between the two points at which the cable is connected to the circuit board.

46. A slack managing method according to Claim 45, further comprising the step of:

providing at least one retaining clip attached to the circuit board through which the cable passes a distance away from the circuit board at a point between and not colinear with the two points at which the cable is connected to the circuit board,

wherein said twisting step occurs at least partially at the retaining clip.

47. A slack managing method according to Claim 45, further comprising the step of:

providing at least two retaining clips attached to the circuit board through which the cable passes a distance away from the circuit board at two points between and not colinear with the two points at which the cable is connected to the circuit board,

wherein said twisting step occurs at least partially between the retaining clips.

48. A slack managing method according to Claim 45, further comprising the step of preventing the cable from being twisted at any portion of the cable other than the predetermined length of cable.